March 20, 2013

STAFF REPORT ADDENDUM

In the matter of :	Application No. 5240 to modify the permit to divert water from five existing wells and one proposed well screened in the Cohansey aquifer in Lower Township, Cape May County
Lower Township MUA	

In compliance with the provisions of N.J.S.A. 58:1A-1 et seq., Lower Township Municipal Utilities Authority (LTMUA), 2900 Bayshore Road, Villas, New Jersey 08251, filed an application with the Department of Environmental Protection (NJDEP) on June 14, 2011 and revised on April 20, 2012 to divert a maximum of 143 million gallons of water during any month (mgm) and a maximum of 1,330 million gallons of water during any year (mgy) at a maximum rate of 4,250 gallons per minute (gpm) from five existing Well Nos. 1, 2, 6, 7, and 9; 262, 247, 280, 306, and 280 feet deep respectively, and one new Well No. 8, 269 feet deep. All wells are screened in the Cohansey aquifer.

This request represents an increase of 50 mgm and 462 mgy above the existing overall allocation of 93 mgm and 868 mgy, an increase in the overall pumping rate from 3,000 gpm to 4,250 gpm, and the addition of one new source. The maximum pumping rate for Well 7 is proposed to be increased from 600 gpm to 800 gpm, the maximum pumping rate for Well 9 is proposed to be increased from 500 gpm to 600 gpm, the maximum diversion rate for Well 1 is proposed to be decreased from 850 gpm to 800 gpm, and the maximum diversion rate for the new Well 8 is to be established at 1,000 gpm.

Diversion is for the purpose of public supply and serves the community of Lower Township, Cape May County.

Public notice was required due to the requested increase in allocation and pumping capacity of two wells, and the addition of a new diversion source, Well No. 8.

Background

A hearing was required pursuant to public comments received by the NJDEP in response to the Public Notice published on September 28, 2012 in the Press of Atlantic City. A public hearing was scheduled for October 30, 2012 at the Cape May County Administration Building in Cape May Court House, Cape May County. This hearing had to be postponed due to weather conditions. A combined public hearing for both LTMUA's application and New Jersey American Water - Cape May System application (5054) was scheduled for December 19, 2012 at 4 P.M. at the Cape May County Administration Building, 4 Moore Road, Cape May Court House, New Jersey 08210, and published on November 19, 2012 in the Press of Atlantic City. At the end of the hearing, the Hearing Officer held the public comment period open until January 3, 2013. Written and/or oral comments were provided by LTMUA, the City of Cape May Water Department (CMCWD), Wildwood Water Utility (WWU), American Littoral Society (ALS), Association of New Jersey Environmental Commissions (ANJEC), Carl M. DeMarcantonio, Dr. Lynette Goodstine, Robert S. Guzek, Jr. of Parker McCay on behalf of the Delaware River and Bay Authority (DRBA), Robert Kecskes, William

LaSalle, Larry Newbold, Bette and Mike McGurk, Emily Oberkofler, and Stephan W. Sheftz in addition to numerous concerned citizens during the public comment period.

Comments/Responses

The following is a summary of comments raised during the public comment period and the NJDEP's responses:

1. **Comment:** The applicant proposed a 45 day time period to allow for reporting the conclusion of elevated chloride readings to the NJDEP prior to requiring implementation of the AWSP. The applicant has suggested the following language be added to the text requirement section of the permit: "Should the result of the rolling average for any Cohansey sentinel well exceed 100 mg/l, or if two consecutive samples exceed 200 mg/l the permittee shall implement the provisions of the AWSP and ..... " The applicant thinks this will give adequate time for implementing the AWSP and protection from having a data anomaly becoming a trigger.

Response: The intent of the water quality monitoring required by this permit is to provide more detailed and current sodium and chloride levels throughout the region. These samples must be collected and analyzed by a New Jersey Certified laboratory. The results of this sampling will be evaluated by LTMUA and the NJDEP to determine any trends or patterns which would provide a better understanding of the movement of the salt water front in this area. Should LTMUA suspect that any sample is contaminated or does not provide a representative sample LTMUA may, within thirty (30) days of receiving the suspect result, submit their justification and supporting documentation in writing to the NJDEP for review. It should be noted that based on the seasonal water supply demands of the region, fluctuations of sodium and chloride levels are expected and are considered to be indicative of the dynamic ground water flow regime of the area. An unrepresentative sample for sodium or chloride is unexpected given the intent of the monitoring, however in the remote situation where LTMUA has documented information justifying that the sample results are not representative of the ground water quality LTMUA may absolutely petition the NJDEP to void that sample and replace it with another. The NJDEP will review this information and provide a written response to LTMUA.

2. **Comment:** DRBA seeks confirmation that the contractual 20% reserve allocation for the County/DRBA (8.6 MGM) and the additional contractual 3.5% for Cape May Airport (1.2 MGM) remains unchanged under Application No. 5240.

Response: The amount of water held for DRBA and the Cape May Airport is 8.6 MGM and 1.2 MGM respectively.

3. **Comment:** DRBA seeks further clarification of and objects to the statement in the Draft Staff Report, Staff Analysis and Conclusions Section, Paragraph 4 on page 20 which states that "as the contract was misinterpreted, the applicants demand projections do not reflect their full obligations under the agreement." The Staff report does not specify how the contract was misinterpreted.

Response: Previously issued permit activities for LTMUA contain misinterpretations of Exhibit "One" of the contract between the applicant and DRBA. These misinterpretations affect the Primary Customer Group limit and in turn impact the quantity of water reserved for the County Airport, Bumble Bee and the City of Cape May. Background/Finding of Fact No. 12 and Staff Analysis/Conclusion No. 4 accurately identifies the amount of water held by LTMUA for specified entities in the contract. Exhibit "One" of the contract memorializes a breakdown of the former County Airport allocation of 43 MGM, 20% of which is held in reserve for the County Airport. According to Exhibit "One", the

percentages held for LTMUA and the beneficiaries to the contract should have been applied to the balance of the Airport Allocation less the 20% reserve, 34.4 MGM, as follows:

Reserve	43 MGM x 20%	8.6 MGM
Balance	43 MGM – 8.6 MGM	34.4 MGM
County Airport	34.4 MGM x 3.5%	1.2 MGM
LTMUA	34.4 MGM x 20%	6.9 MGM
Cape May City	34.4 MGM x 50%	17.2 MGM
Bumble Bee	34.4 MGM x 25.6%	9.1 MGM
TOTAL		43 MGM

4. **Comment:** DRBA seeks clarification of and objects to the data contained within the Draft Staff Report, Staff Analysis and Conclusions Section, Paragraph 4 table on page 19 which indicates that the Airport guaranteed reserve equals 1.2 MGM. The 1992 Agreement indicates that the Airport guaranteed reserve equals 1.5 MGM.

Response: The Airport Water Allocation Formula in Exhibit "One" also contains mathematical errors in the 30 Day Month column as follows: "Balance of Allocation Less 20% Reserve" should equate to 1.147 MGD x 30 days/month or 34.4 MGM and "Guaranteed to County Airport" should equate to 0.403 MGD x 30 days/month or 1.2 MGM.

5. **Comment:** DRBA further seeks clarification of and objects to the data contained within the Draft Staff Report, Staff Analysis and Conclusions Section, Paragraph 4 table on page 19 to the extent that the Project Annual Demand does not equal the peak monthly demand under the 1992 Agreement multiplied by 12 months.

Response: The contract between LTMUA and DRBA does not make annual allotments and the annual allocation is not based on peak monthly demand multiplied by 12 months. A standard ratio of 7.85 monthly to yearly allocation was used to obtain the recommended yearly allocation of 213.991 MGY based on Bureau of Safe Drinking Water regulations regarding estimation of peak daily demands, specifically N.J.A.C. 7:10-11.5(f) and (g). In addition, per N.J.A.C 7:19-2.14(a)2., each permit shall contain general conditions including the maximum allowable diversion expressed in terms of a daily, monthly and/or annual allocation. Annual allocations are typically established at a figure of less than 12 times the monthly limit based on seasonal use variations, allowing for greater use during hot dry periods and lower use during the cooler wetter months. Allocation limits are established based on historical use, seasonal trends and justifiable future demand projections. As historical peak water use at the airport (approximately 0.005 MGD) has been significantly less than allotted for by Exhibit "One" of the contract [0.327 MGD=0.04 MGD (3.5% AP Guarantee) + 0.287 MGD (20% AP Reserve)], this should provide for substantial growth at the airport while recognizing seasonal water use trends.

6. **Comment:** DRBA further seeks clarification of and objects to the statement within the Draft Staff Report, Background/Findings of Fact Section, Paragraph 12 to the extent that it indicates that "DRBA does not have a physical connection to LTMUA to obtain the water." The Staff report does not specify what is meant by this statement.

Response: The statement "The DRBA does not have a physical connection to LTMUA to obtain the water" has been removed from the final staff report.

7. **Comment:** LTMUA appears to be seeking far more water than is needed to connect existing residences in areas where water contamination is either a present issue, or at a reasonable risk of becoming so in the future.

Response: The draft staff report has recommended an allocation of 143 MGM and 1,078.952 MGY based on 10 year demands submitted by LTMUA. The recommended annual limit is significantly less than the requested annual allocation. The amount available for distribution by LTMUA to the Primary Customer Group is 115.74 MGM and 820.617 MGY. The remainder is held in reserve to meet the 1992 contractual obligations. Demands include completion of the Town Bank and Villas water main extension project, Lake Laurie connection, Millman water tank project, Capital & Republic, and Victoria Commons and Conifers COAH projects. A detailed discussion of the projected demands, historical water use and the rational for the recommended limits is contained in Staff Analysis and Conclusions item 4 of the final staff report.

8. **Comment:** The new well proposed by LTMUA will not solve the Township's water supply problems; it will only delay the inevitable need for well abandonment and new construction of yet another well. That is not a solution to the Township's water supply issues; it is merely the repetition of the same old failed strategy that eventually leads to desalination. What this translates to is Lower Township borrowing money for a short-lived water supply alternative.

Response: NJDEP is recommending implementation of alternatives similar to Scenario 4 in the 2009 USGS report as an "interim" solution until a more sustainable solution is evaluated and implemented. The NJDEP believes interim action is prudent as it will address impending needs, such as addressing potable water supply issues for existing communities served by shallow private wells (e.g. Town Bank and Villas). NJDEP acknowledges that these are interim measures. More comprehensive alternatives are still needed and must be developed. Therefore, all potentially affected permit holders in Cape May County are being required to implement enhanced water conservation and water quality monitoring in addition to implementing alternative water supply plans (AWSP) as discussed in Background/Findings of Fact item 7 and 14 and in the Summary section of the final staff report when applicable.

9. **Comment:** NJDEP recently found that saltwater intrusion is occurring at a much faster rate than predicted. The models said it would be 30 to 40 years to see the saltwater intrusion that the LTMUA's water supply is now experiencing. Clearly, the local short-term strategies are not keeping pace with what has long been a serious countywide problem. The NJDEP is charged with identifying sustainable regional solutions to the saltwater intrusion problem in the county. Yet, before the NJDEP and USGS have even had a chance to adequately make sense of these recent findings necessary to recommend a science-based solution, LTMUA, the WWU, and NJAW are all asking for increased water allocations, which would only exacerbate (and accelerate) the current water supply issues. Instead of rushing to accommodate more development in Lower Township, NJDEP should be fulfilling its obligation for regional planning that prevents the further degradation of surface water resources and increased saltwater intrusion.

Response: As noted in the Staff Report, LTMUA's monitoring results indicate that saltwater intrusion is not currently occurring in any of its supply or monitoring wells. However, due to the recent water quality results in and around WWU's Rio Grande Well Field indicating that saltwater is advancing inland sooner than expected, all potentially affected permit holders in Cape May County are being required to implement enhanced water conservation and water quality monitoring in addition to implementing AWSP as discussed in Background/Findings of Fact item 7 and 14 and in the Summary section of the final staff report and response to Comment 8 above.

10. **Comment:** The NJDEP should be using its authority to require the county and its towns to implement meaningful and comprehensive water conservation measures that reduce demand, reduce impacts, and the need for costly new public infrastructure. The NJDEP can advise the towns that the cheapest water is the water they save, but such admonishments are meaningless if the NJDEP continues to increase water allocations without requiring meaningful water conservation measures.

Response: NJDEP is recommending a robust county wide conservation effort to maximize the effectiveness of all the engineered initiatives. Requirements for enhanced conservation plans for individual systems are being placed in all Water Allocation Permit modifications and renewals issued in Cape May County. Also, in 2012, the Division of Water Supply and Geoscience (DWSGS) conducted two conservation presentations in Cape May County, one in Middle Township and one in Stone Harbor. The Division engaged the New Jersey Watershed Ambassador stationed in the area to help create a Cape May County based webpage that will become a way for local municipalities to highlight their efforts and provide guidance to their neighbors to start initiating conservation programs as well. The Watershed Ambassador is going to various environmental commission meetings and working with towns to identify what conservation work is being done and to create write-ups of those efforts to be highlighted on the webpage. The webpage will also be a place for a "Cape May Conserves" template gallery of marketing material that can be specifically customized for any town. Items under consideration include brochures, door-hangers, table tents for restaurants etc. The NJDEP Graphics group has agreed to help design the marketing material. The content is being compiled by the Watershed Ambassador. Permission has been granted to host the website on the Cape May County Page. The Watershed Ambassador goes to schools and does presentations using an Enviroscape model that highlights water quality and non-point source pollution issues. They have added to his presentations the use of a groundwater model to demonstrate saltwater intrusion. The Watershed Ambassador is also planning a rain barrel workshop with Stone Harbor in Spring 2013 as a way to promote to gardeners that they can recycle the rain for their gardening needs instead of using potable water. Finally, NJDEP along with program partners at Rutgers Water Resources Program have recently undertaken the NJ Water Savers Project - a water conservation research and pilot project focusing on outreach and education for both indoor and outdoor water conservation. In preparation for the pilot project NJDEP/ Rutgers researched ordinances, laws and programs in New Mexico and throughout the country. The results of pilot project can be viewed at www.njwatersavers.rutgers.edu and include simple, community-based models to encourage the replication of successful programs and adoption of model ordinances that towns can adopt to curtail water waste outdoors.

11. **Comment:** We strongly encourage the NJDEP to finally release the draft New Jersey Statewide Water Supply Master Plan so that it, the LTMUA and others, can make informed water supply and wastewater management decisions.

Response: This comment is duly noted however it is beyond the scope of this permit modification. The Department has been working on an update to The New Jersey Statewide Water Supply Master Plan. However, at this time the 1996 plan is currently in effect.

12. **Comment:** There is a wide discrepancy in the population currently served by the LTMUA, what it proposes to serve through the increased water allocation, and the total population of Lower Township. According to the NJDEP Staff Report, the year-round population presently served by the LTMUA is 17,150 and summer population is estimated at 34,300 (page 8). There are 6,646 LTMUA residential customers and 202 commercial/industrial customers (Remington, Vernick, and Walberg Engineers, Water Allocation Permit Modification, page 10, June, 2011). The residential water use component is 96.9% (Staff Report, page 8). According to the Cape May County Planning Department, the average household size was 2.1 people per residence (Cape May Planning Department, Cape May County Household by Type: 2006-2010, 2010) in 2010. If 3,785 new connections are proposed to serve existing residents in the Villas/Townbank sections, this translates to an increase of 7,949 in population served by the LTMUA, for a total population of 25,099. The County Planning Department, however, estimates that the entire (those with public water and those without) Lower Township population was 22,866 in 2010 Cape May Planning Department, NJ Counties and Cape May County Municipalities: 2000 and 2010, 2012). Much of the remaining sections of Lower

Township are served either by private wells or the WWU or CMCWD. NJDEP should require the LTMUA to re-evaluate its demand projections.

Response: In reviewing this application, the Bureau has worked closely with the applicant to determine the summer and winter populations and a yearly average in order to accurately calculate demand numbers. The recommended annual allocation is significantly less than the requested annual allocation based on this work.

13. Comment: The increased allocation would allow a significant amount of water to be conveyed to entities outside of Lower Township due to the 1992 contractual arrangement between LTMUA and DRBA. This arrangement was effectuated due to impending saltwater intrusion impacting Cape May City's freshwater wells in the 1990s. The LTMUA was to provide water to Cape May City and its neighboring municipalities. However, it was never implemented, and Cape May City constructed a desalination plant in 1998. Cape May City now enjoys the only truly sustainable was supply in Cape May County. Nevertheless, Cape May City can theoretically request that the contract be honored, and require the LTMUA to convey a significant amount of water to its distribution system. If the contractual arrangement were to be implemented during the term of the proposed allocation, it would exceed the demand projected to occur in the year 2100. The 2009 USGS report estimates that this demand would result in LTMUA wells 1 and 2 being over-taken by saltwater intrusion, intrusion accelerating toward its remaining wells, and the salt front reaching the WWU Rio Grande Well Field (USGS, 2009, pages 111 to 145). This demand would also cause substantial streamflow/wetlands depletion. Last, eliminating this potential demand could enable LTMUA to stay within its existing annual water allocation limit. The NJDEP should utilize its existing authority, specifically under N.J.A.C. 7:19-6.3, to void the 1992 contractual arrangement and any subsequent revisions to extend the active life of LTMUA's wells. Cape May City's construction of a desalination plant renders this part of the proposed allocation unnecessary.

Response: The 1992 contract can only be renegotiated and/or voided by the parties involved. The NJDEP has no such authority in this matter. The contract term is 25 years. Water held for Bumble Bee under this contract has been relinquished to LTMUA. Otherwise, less than 0.005 MGD of the water held in the contract has been utilized at the Cape May County Airport. It is doubtful that more water will be transferred or used under this agreement. NJDEP met with all interested parties in a failed attempt to facilitate re-negotiation of the contract. Pursuant to N.J.A.C. 7:19-6.3(d), this permit is requiring LTMUA to develop and implement an AWSP. Based on January 4, 2013 discussions with representatives of LTMUA, CMCWD, WWU, NJAW, and the DWSGS, LTMUA's AWSP will consist of connecting to WWU and reactivating an emergency interconnection agreement with CMCWD which in turn provides a redundancy and back up supply for all purveyors involved. Finally, all bulk purchase agreements must receive NJDEP approval in accordance with N.J.A.C. 7:19-7. Based on present conditions, NJDEP approval of such a contract would be doubtful as Cape May City's desalination facility is a more sustainable, ample source of supply to meet the City's needs.

14. Comment: The proposed connection to the Lake Laurie Campground will have similar effects as discussed above (i.e., increased saltwater intrusion toward LTMUA wells, exacerbate streamflow/wetlands depletion, etc.). In consideration of the limits of LTMUA's water supply, the NJDEP should not approve this connection.

Response: The Lake Laurie Campground connection has been calculated into the LTMUA's demand projections for the same reason Town Bank and Villas is requesting connection. Lake Laurie Campground wells are vulnerable to the same contamination as other shallow, private wells in the area. The proposed Lake Laurie Campground connection is to provide a clean and safe drinking water supply to the campground. However, based on peak historical demands at Lake Laurie Campground (1.207 MGM and 4.241 MGY) as reported under Water Use Registration 11335W that provides for the diversion of up to 3.1

MGM, NJDEP has revised its recommendation to approve up to 1.5 MGM and 11.775 MGY for Lake Laurie and is reducing the overall annual allocation 1,034.608 MG with Primary Customer Group Limits of 115.74 MGM and 820.617 MGY. The limits sections of the permit and Item 4 in Staff Analysis & Conclusions, and the Summary have been updated in the final staff report accordingly.

15. **Comment:** The demand projections being used to request an increase in water allocation did not consider any water conservation measures, despite the fact demand reductions would extend the active life of LTMUA's wells as well as reduce streamflow/wetlands depletion. Substantial demand cutbacks can play a strong role in staying with the existing LTMUA monthly allocation limit. The LTMUA presently has a water conservation ordinance that was not used to estimate the magnitude of potential water savings. The absence of a reduction in demand will essentially mean that LTMUA customers will see substantial increase in their water rates when saltwater eventually closes their wells and an expensive new water supply is required. The LTMUA submitted a water conservation plan to the NJDEP, and is required to submit an "enhanced" conservation plan as a condition of its water allocation increase. Under the recently submitted plan, outdoor water use would be prohibited if a Level 3 Water Supply Emergency was declared. It is recommended that this declaration be made, and that demand projections factor in this reduction. The proposed allocation should then factor in the reduced demand to determine if the increase is warranted. It is also recommended that the water allocation be modified to include a condition that a further reduction in demand may occur upon a schedule included in the countywide water conservation plan that would be developed by the NJDEP pursuant to the Gibson Bill.

Response: A Level 3 Water Supply Emergency can only be declared by the Governor and is done by Drought Region during times of drought conditions. Mandated conservation measures are outside the authority of NJDEP, however the NJDEP is granted the authority by N.J.A.C. 7:19-2 to require Drought Management and Water Conservation Plans be submitted. As mentioned in the response to comment 10 above, the NJDEP is working with the Cape May County Purveyors to develop comprehensive conservation plans.

16. **Comment:** In its Staff Report, the NJDEP concluded "the applicant's water use is reasonable" (page 18). To suggest that the proposed LTMUA increase in allocation in conjunction with its demands is "reasonable" defies logic. As described below, the water supply plan that LTMUA proposed is fleeting; one of its major wells will soon be lost, followed by the loss of others. Extraordinary conservation measures would be in order. In consideration of the lack of sustainability of the proposed LTMUA supply plan, the NJDEP should require the purveyor to implement the most practical conservation measures, as described above.

Response: NJDEP has met and will continue to conduct regular meetings with water purveyors from the region to develop and enhance water conservation plans, monitoring network and AWSP's for affected purveyors as discussed in response to comments 9 and 10 above.

17. **Comment:** The proposed increase in allocation is for new well 8 and a 33% increase from existing well 7 and a 37% increase from existing well 9. However, the aquifer test was only conducted for the new well 8. In fact, well 9 was shut down and used as an observation well to perform the test. Based on the above, the aquifer test likely showed conservative results with regard to ground water drawdown and radius of influence. The cumulative effects of the new well and the existing wells that will undergo increased withdrawal rates were not evaluated. The NJDEP should require the LTMUA to conduct a new aquifer test where all three wells for which the allocation increase is being sought are assessed to estimate the cumulative effects on drawdown and the radius of influence.

Response: An aquifer test proposal was submitted for review and approval to BWAWP and New Jersey Geological and Water Survey (NJGWS) prior to performing the aquifer test. NGSWS was asked to

evaluate the aquifer test submitted with LTMUA's application. The NJGWS analyzed the aquifer test and reported its results on December 2, 2011. The test provided data which enabled the analysis of impacts associated with the increase to the resource, interconnected resources and other users thereof and no supplemental data or analysis was required of the applicant. Supplemental USGS modeling was also required to analyze projected impacts of the requested allocation. Data from single well aquifer testing are much more reliable than multiple well testing results as there are fewer variables to control. Cumulative impacts can then be assessed based on the aquifer parameters calculated from the single well test utilizing ground water flow models.

18. **Comment:** The 2009 USGS Report predicted in its ground water model the rate of saltwater intrusion in the Cohansey aquifer and other deleterious effect that increases in demand to full build out under Scenario 3 would result in (table 21 of page 127). The report indicates that the Wildwood communities are currently at full build-out, while Lower Township is projected to reach build-out by the year 2100. In the report, the approximate current demand on the WWU Cohansey aquifer wells is 1,220 MGY, while current demand from the LTMUA Cohansey aquifer wells is 400 MGY. According to the NJDEP Staff Report, the current LTMUA demand is more recently estimated at 458 MGY (page 7). The difference is due to the increase in connections that the LTMUA has made since the USGS model was constructed. The build-out demands used in the USGS model estimate that WWU Cohansey aquifer demand would be 1,334 MGY (as compared to the current 1,220 MGY), while the LTMUA Cohansey aquifer demand would be 889 MGY (as compared to the current 458 MGY).

Response: Demands have changed since 1999-2003 (baseline years used by the 2009 USGS report). WWU's current Cohansey demand is significantly less than cited above. In 2008, WWU significantly reduced its Cohansey pumpage and increased pumpage from the deeper confined aquifers in accordance with USGS Scenario 4. WWU's Cohansey annual average water use since 2008 is 716 MGY. LTMUA has experienced some increase in Cohansey demands over the past 10 years but domestic usage of the Estuarine sand is projected to decline as Lower Township residents discontinue use of their wells and connect to LTMUA. Due to these shifts in demands, USGS prepared draft supplemental model runs referenced in the draft staff report.

19. **Comment:** The NJDEP is now considering increasing the LTMUA allocation to 1,078 MGY – a 21 percent increase over the demand projected when the township reached build-out nearly 90 years from now. The 1,078 MGY allocation would allow the LTMUA to sell 213 MGY of water to other entities outside of Lower Township.

Response: Of the 213 MGY allocation tied up in the airport allocation contract of 1992, 153 MGY or more than half is reserved for use at the county airport within Lower Township. Regardless, very little water has ever been used under this agreement as discussed in response to Comment 13 above.

20. **Comment:** Employing the LTMUA build-out demand of 889 MGY (and not the 1,078 MGY that the NJDEP is proposing the allocation be increased to), the 2009 USGS Report predicted that Scenario 3 would result in the salt front overtaking LTMUA's wells 1 and 2 and all of WWU's wells by or before 2050 (table 21 on page 127). Using the LTMUA 889 MGY build-out demand in Scenario 3, the USGS also predicted: (1) increases of up to 7 feet of additional Cohansey aquifer drawdown south of the Cape May Canal, 22 feet at the Airport, and 5 feet at the WWU Rio Grande Well Field (USGS, 2009, page 1); (2) water table declines of up to 0.7 feet Table 23, page 131), and (3) stream baseflow reductions from 0% to 18% in the 13 sub-watersheds (Table 24, page 132). This is in addition to declines in ground water levels and streamflow depletion already occurring from ground water pumpage in southern Cape May County. Under the 889 MGY Scenario 3 build-out estimate, the USGS Report predicted that the salt front would migrate between 5,400 and 6,300 feet westerly toward LTMUA's airport wells. Based on Figure 73A of the

USGS Report (page 119), the current location of the salt front is approximately 9,500 feet westerly of the airport wells. As such, the salt front would migrate to within 4,100 and 3,200 feet of the wells if the allocation were increased to 889 MGY. The NJDEP Staff Report indicates that a supplemental estimate of saltwater intrusion was recently developed by the USGS because of the proposed increase in LTMUA water allocation to 1,078 MGY (pages 20 – 21). Under this increased demand, it is now predicted that the salt front would advance an additional 2,100 feet closer to the airport wells. If this were indeed the case, the salt front would migrate to within 2,000 and 1,100 feet of the airport wells if the allocation increased to the amount proposed by the NJDEP. There is no discussion of the additional impacts to ground water levels, water table impacts, and streamflow depletion that would occur if the allocation were increased to 1,078 MGY. These impacts will clearly be exacerbated by the larger increase in allocation.

Response: As indicated in the response to Comment 14, the annual allocation has been adjusted downward to 1034.608 MG. In addition, as stated in response to Comments 13 and 19 above, it is doubtful that the water held in the contract will be utilized. Therefore, it is anticipated that the USGS Scenario 4 adequately predicts potential impacts associated with the Primary Customer group allocation. The supplemental USGS modeling report and the NJGWS analysis of the aquifer test address projected impacts if the full allocation were to be withdrawn. Streamflow/water table impacts are anticipated to be off-set as private wells which currently serve the communities in Lower Township will no longer be used when connections to the LTMUA system are completed. The sentinel well network and monitoring program are in place and will identify changing conditions. The AWSP will be implemented within five years of exceedance of triggers.

21. Comment: As suggested in the 2009 USGS Report and the supplemental USGS analysis, the greater the present consumption of the LTMUA's existing water supply, the less water is available for the LTMUA's future use. As demand increases through the proposed allocation increase, saltwater will advance further toward its wells until they finally need to be closed. This will result in the need for a larger and more costly alternative water supply for LTMUA customers. The 2009 USGS Report illustrated that there are alternative water supplies that can be implemented that would allow for continued operation of most of LTMUA's existing wells, albeit at lesser rates. Use of these alternatives would result in a smaller, but less expensive, alternative supplemental supply. The NJDEP and LTMUA has selected a strategy that will eventually lead to closure of many of its existing wells and the ultimate need for the larger, more expensive alternative. ALS believes that most LTMUA customers are unaware that this strategy is being pursued for them. One can conclude the following from the above that the increase in allocation is quite short-lived; it is fundamentally unsustainable. The LTMUA and its customers will shortly need a new alternative supply. The NJDEP is requiring the LTMUA to develop an alternative water supply plan, even though the Gibson Bill provided funding and mandated that the NJDEP develop a sustainable alternatives water supply plan for the County. Consequently, the LTMUA and its customers will be funding the assessment of an alternative. This is likely to be quite costly, especially when ground water modeling will be needed to estimate saltwater intrusion and streamflow/wetland effects, as well as a conservation plan as mandated by the increase in the LTMUA water allocation. Further, due to the economics of scale, regional water supply solutions are less expensive than local alternatives. For example, the WWU also will require an alternative water supply in the future. It would be far less expensive for both purveyors to implement an alternative than for either one to independently implement. The NJDEP should fulfill its responsibilities under the Gibson Bill to evaluate and select a sustainable countywide water supply alternative plan in an expedited manner, including the development of a countywide conservation and reuse plan. The LTMUA should abandon the current strategy, await the development of the NJDEP plan, and connect to it.

Response: On July 18, 2012, representatives of the NJDEP held a public meeting in the Middle Township Building to present its draft plan for future water supply in Cape May County. This plan is now being finalized. The draft plan calls for enhanced conservation, bolstering the sentinel well network with

additional sentinel wells and a coordinated monitoring schedule for all regional allocation permit holders in addition to implementation of alternatives as discussed in Staff Analysis and Conclusions No. 7 of the draft and final staff report. Preliminary NJDEP estimates determined that the most cost effective alternative would be spine wells similar to USGS Scenario 7. NJAW-CMCH has wells in the Atlantic City 800-foot sand (AC800) which are similar to the spine well scenario. WWU has constructed wells in the AC800 and is in the preliminary stages of evaluating wells closer to the spine of the peninsula as well. LTMUA is in the preliminary stages of connecting to these two systems and is also connected to CMCWD. The major water purveyors in Cape May County have committed to work together and with the NJDEP to implement alternatives that will provide sustainable supplies to the southern portion of the peninsula. The Department and purveyors are working together to develop comprehensive long term alternatives. Funding in the Gibson Bill was used to perform the evaluation and any remaining funds will be used to support future needs such as analysis to implement alternatives or conservation programs.

22. **Comment:** The LTMUA consultant stated that the "proposed location of Well No. 8 conforms with USGS's recommended placement of the supply well" (Remington, Vernick, and Walberg Engineers, Water Allocation Permit Modification, June, 2011, page 4). This is inaccurate. The USGS, NJDEP, Cape May County Planning Board, and water purveyors in the County cooperatively developed three baseline and six alternative future water-withdrawal scenarios to be simulated. The simulations were used to predict three major adverse effects: (1) saltwater intrusion, (2) depletion of ecological water supplies, and (3) declines in water levels in the confined aquifers during 2003-2050. The simulations used reported withdrawals, NJDEP full allocation withdrawals, or estimated full build-out water withdrawals for potable and non-potable water supplies. The goal of simulating the three baseline scenarios was to determine the extent of adverse effects if each community were to continue using existing wells with current (1999-2003) or greater withdrawal rates. The goal of simulating the six alternative future withdrawal scenarios was to identify one or more scenarios that would provide enough water to meet projected demand and cause the least adverse effects on the county's water supplies. The alternative that the water allocation increase is being proposed is a baseline "no action" strategy (Scenario 2), and the effects associated with this strategy are quite adverse, as described above. The consultant's report and the NJDEP Staff Report should be revised to reflect the above.

Response: The NJDEP respectfully disagrees. See the response to Comments 8 and 20 above.

23. **Comment:** As described above, the NJDEP Staff Report indicates a supplemental estimate of saltwater intrusion was recently developed by the USGS because of the proposed increase in the LTMUA water allocation (pages 20 – 21). It is now predicted that the salt front would advance an additional 2,100 feet closer to the airport wells. The report did not indicate whether other LTMUA wells would possibly be impacted by saltwater or when. If the supplemental USGS evaluation estimated the migration of saltwater toward other LTMUA wells, these estimates should be included in the Staff Report. This information is of obvious importance to Lower Township citizens and others in southern Cape May County. In addition, it is recommended that saltwater intrusion migration distances be translated to travel times so that affected parties have an understanding of the gravity of the water supply situation in Lower Township.

Response: USGS provided NJDEP with the draft results for decision making purposes but the supplemental USGS evaluations are in draft form and cannot be included in public documents at this time. The requirement to install sentinel wells as part of the LTMUA's permit is designed to gather the data needed to track the movement of the salt front towards LTMUA's potable supply wells and to validate modeling estimates. The saltwater intrusion migration distances are best estimates based on modeling of existing data and cannot be translated to exact travel times due to their non-linear nature and differences between modeled estimates and actual field measurements and observations.

24. **Comment:** If the supplemental USGS evaluation estimated the migration of saltwater toward LTMUA wells at the airport will occur faster than expected, it is likely that the WWU's Cohansey aquifer wells at the Rio Grande Well Field will also be affected earlier than previously projected. If the supplemental USGS evaluation estimated the migration of saltwater toward WWU's wells, these projections should be included in the Staff Report.

Response: See response to Comment 23 above. Present monitoring results in and around the WWU Rio Grande Well Field demonstrate discrepancies between modeled and actual conditions in the Cohansey aquifer. A modification to the WWU permit is currently being drafted to address salt water intrusion in the Cohansey aquifer and impacts associated with inadvertently shifting pumpage from the Rio Grande water bearing zone to the AC800. In order to monitor the ambient conditions of the Cohansey aquifer and to provide advance indications of encroaching salt, LTMUA has installed seven permanent sentinel wells, five completed in the Cohansey aquifer and two in Estuarine sand and is required to monitor chloride and sodium concentrations in all of its production and sentinel wells on a quarterly basis. In addition, considering the potential for salt water intrusion in the Cohansey aquifer, the LTMUA must prepare and submit to the Department for approval an AWSP to address the potential future reduction of water allocated due to salt water intrusion in the Cohansey aquifer. The AWSP shall evaluate and propose the development and implementation of alternate water supplies along with the reduction in the amount of water allocated from specific Cohansey aquifer sources. The AWSP shall evaluate alternate water supplies including but not limited to: purchasing water from other systems, water reuse, desalination, the addition of new sources constructed inland along the spine of the peninsula and/or new sources constructed in different aquifers (Atlantic City 800-foot sand, Rio Grande Water Bearing Zone).

25. **Comment:** The proposed diversion exceeds natural replenishment or safe yield of the resource and is not in the public interest as it is not based upon a sustainable alternative water supply plan developed under the Gibson Bill. NJDEP should expeditiously fulfill the Gibson Bill's requirements and mandate that the LTMUA connect to the applicable sustainable alternative.

Response: See the response to comment 8 and 21 above.

26. **Comment:** The LTMUA allocation increase will adversely affect other existing withdrawals. The NJDEP should expeditiously fulfill the Gibson Bill's requirements and mandate that the LTMUA connect to the applicable sustainable alternative.

Response: See the response to comments 8, 20, 21 and 23 above.

27. **Comment:** The pending application should be denied on the grounds that it would cause detrimental saline intrusion into the Cohansey aquifer.

Response: See the response to comments 8, 20 and 21.

28. **Comment:** There have recently been reports that the WWU might be experiencing saltwater intrusion much sooner than expected (Cape May County Herald, "Saltwater Intrusion in Wildwood Well Field May Slow Lower MUA Water Permit, Jack Fichter, August 3, 2012). There was no mention of these circumstances in the NJDEP Staff Report. This issue warrants being addressed in the NJDEP Staff Report.

Response: See response to comments 9 and 24 above.

29. **Comment:** The LTMUA and the NJDEP did not adequately assess any impacts that the increase in water allocation would have on wetlands. The NJDEP should fulfill its responsibilities to the law and expeditiously develop the sustainable water supply alternatives so that the LTMUA can implement the selected plan.

Response: The BWAWP is prohibited from regulating wetlands per a 2009 Superior Court Judge ruling. See the response to Comment 20 above.

30. Comment: There is clearly a link between the LTMUA well withdrawals from the Cohansey aquifer and reductions in streamflow. The withdrawals are fundamentally having similar effects on streamflow as a surface water withdrawal. Yet, the LTMUA application for the increase in water allocation or the NJDEP does not address these possible impacts. The NJDEP water allocation regulations (N.J.A.C. 7:15-5 et seq.) require specific assessments of withdrawals that can potentially affect streamflow. The LTMUA application for the increase in water allocation and the NJDEP should address the appropriate provisions in NJDEP water allocation regulations to estimate these possible impacts.

Response: The additional allocation requested by LTMUA is primarily to support existing development in Villas and Town Bank. As discussed in response to Comment 20 above, shallow impacts are not anticipated as shallow unconfined wells that could affect streamflow are being abandoned. The Cohansey aquifer in the vicinity of LTMUA is confined. Impacts to surface water from confined diversions are challenging to identify, quantify and measure at a precise location. Generally, these impacts cannot be quantitatively regulated. The impacts from confined withdrawals are diffuse and cannot be attributed to one specific well or even purveyor. In addition, they may take many years to manifest themselves. Likewise, any effects associated with a reduction in pumpage may not be seen in a stream monitoring location, even if an appropriate location could be selected. Regardless, all streams in the vicinity of this diversion are intermittent. Pursuant to N.J.A.C. 7:19-1.6(e)5, the Department is prohibited from establishing a passing flow requirement for a diversion source if the 7 day, 10 year low flow is Zero (0); the stream flow is intermittent; or the size or nature of the watershed is such that a passing flow requirement is impractical.

31. Comment: The NJDEP previously indicated that a sustainable water supply alternative in Cape May County is one that will provide freshwater for at least 100 years (Middle Township Gazette, May 20, 2010). The NJDEP is requiring the LTMUA to develop an AWSP. It is not clear if the LTMUA plan will be required to meet the 100-year criteria. The NJDEP Staff Report should clarify the above.

Response: Due to recent water quality monitoring results at the WWU Rio Grande Well Field, it appears that the 100 year sustainability goal is not attainable. See the response to Comment 21 above.

32. Comment: N.J.A.C. 7:19-1.6(e) specifies that the NJDEP establish a passing flow requirement for each surface water diversion source or ground water diversion that impacts a surface water source. Despite these statutory requirements, the NJDEP required no passing flow for the proposed LTMUA increase in its water allocation.

Response: See the response to Comment 31 above.

33. Comment: The NJDEP will be requiring that the LTMUA install seven saltwater intrusion sentinel wells and conduct quarterly sampling of the wells (Staff Report, pages 22 – 23). The cost of these wells is expected to be quite expensive. However, the monitoring wells are needed because the LTMUA is proposing to maintain its existing wells in close proximity to naturally occurring salty water. As described above, the existing LTMUA wells will have a very limited active life. The NJDEP recognizes this fact and is requiring the LTMUA to develop an Alternative Water Supply Plan (AWSP) so that there will be a water supply available when the existing wells in due course go salty (Staff Report, page 23). If the LTMUA were to shortly implement a sustainable water supply alternative plan, which the Gibson Bill mandates that NJDEP evaluate, the expensive monitoring system may not have to be so robust, and consequently less expensive. Further, if the NJDEP acted in accordance with the Gibson Bill, the LTMUA would not have to expend Lower Township taxpayer moneys to develop its own AWSP. The NJDEP should fulfill its statutory requirements to develop the countywide sustainable alternative water supply plan, and use its existing legal

authority to mandate that the LTMUA implement the selected alternative. Should the NJDEP follow this recommendation, it could also consider not requiring the implementation of the expensive monitoring program, and allow the LTMUA to employ these funds to connecting to a sustainable water supply alternative. In addition, the LTMUA could expend its funds on implementing the sustainable plan rather than spending money on developing its own individual AWSP.

Response: Modeling predictions are only as good as the data used to construct the model. The existing sentinel well network in Cape May County was determined to be significantly deficient. The installation of sentinel wells is needed to validate modeling predictions as well as to provide data on the movement of salt water towards the purveyor wells. It is a necessary expenditure to protect, with the exception of well 8, existing sources of supply, similar to an insurance policy. With regard to the development of a regional AWSP please see response to Comment 21 above.

34. Comment: The monitoring program that is proposed to be incorporated as a condition of the increase in the LTMUA water allocation calls for saltwater (chloride) sampling to be initiated six months after the increase is approved. Quarterly sampling is then to be initiated after the wells are installed. Rolling annual calculations of chloride are then to be made. If a rolling annual average calculation reaches 100 mg/l or if any one sample exceeds 250 mg/l (the drinking water standard), the provisions of the AWSP are to be implemented. The AWSP is to be submitted within one year of the allocation increase approval. The condition in the proposed allocation states that AWSP shall evaluate and propose potential demand reductions, possible alternatives if wells go salty, and milestones for implementation of the alternatives. Final implementation of the AWSP shall be within five years of exceedance of the chloride benchmarks described above (Staff Report, page 23).

These conditions do not seem to recognize that saltwater can occur rather swiftly. The USGS showed saltwater can travel 2,000 feet in five years in the Cape May City area and at a rate of 220 feet a year in the Villas area of Lower Township as a result of ground water pumpage of the Cohansey aquifer (Lacombe, P.J., and Carleton, G.B., 1992, Saltwater intrusion into fresh groundwater supplies, southern Cape May County, New Jersey, 1890–1991, *in* The future availability of ground water resources: Proceedings of the National Symposium, Raleigh, N.C., April 12–15, 1992, American Water Resources Association, Bethesda, Md., p. 287–297). The exact location of the salt front is unknown. Since the LTMUA wells are in relative close proximity to each other, in conjunction with the fact that they are all located near the Delaware Bay, there is the possibility that one or more of the wells can be affected in a short period. This possibility is enhanced as demand dramatically increases as more and more homes in Villas and Townbank are connected to the LTMUA. The AWSP may not be ready should this occur. The NJDEP should fulfill the Gibson Brill and have a sustainable water supply available for the LTMUA to connect to within three years.

Response: LTMUA has proactively begun implementing the monitoring plan and development of the AWSP. Seven new sentinel wells have been installed and the initial round of samples has been obtained. Results of sampling performed by WWU and LTMUA provide a very good estimation of the geometry of the salt front. LTMUA has also drafted the AWSP and intends to begin construction of an interconnection with WWU and update its interconnection agreement with CMCWD as discussed in response to Comment 13 above. The trigger values were conservatively set to provide for the necessary reaction time.

35. Comment: Nowhere in the NJDEP Staff Report does it mention that the NJDEP is statutorily mandated pursuant to the Gibson Bill to develop a sustainable alternatives water supply plan and countywide water conservation/reuse plans for purveyors such as the LTMUA to utilize. The NJDEP Staff Report should include language that specifies that the NJDEP was appropriated $2 million to develop a regional sustainable alternative water supply plan and countywide water conservation/reuse plans for purveyors such

as the LTMUA to utilize. The public should be aware that the NJDEP intends to shift these responsibilities onto the residents of Lower Township.

Response: See response to Comments 10 and 21 above. In addition, "Countywide conservation/reuse plans for purveyors" are not referenced or mandated in P.L. 2001 Chapter 165, commonly referred to as the Gibson Bill. NJDEP has utilized the findings of the USGS report, "Future Water-Supply Scenarios, Cape May County, New Jersey 2003-2005," SIR 2009-5187 solicited by the NJDEP in accordance with P.L. 2001 Chapter 165, and supplemental groundwater modeling to evaluate LTMUA's water allocation request and to develop a draft updated strategy for water supply in Cape May County. Funding in the Gibson Bill was used to perform the evaluation and any remaining funds will be used to support future needs such as analysis to implement alternatives or conservation programs.

36. Comment: The NJDEP plans to include conditions in the LTMUA permit that it develops an AWSP and an enhanced water conservation plan. However, there is no requirement that public hearings be held so that the input could be sought. If the NJDEP is proposing to shift the Gibson Bill requirements to the LTMUA, that law requires said public participation. Implementations of these plans are likely to be costly to LTMUA customers as well as potentially affect their everyday lives. The NJDEP should include conditions in the proposed LTMUA water allocation that requires it to conduct public hearings on the proposed AWSP and conservation plan in accordance with the Gibson Bill public participation requirements. Once these plans have been drafted and the NJDEP have approved them, major modification to the LTMUA water allocation permit should be issued and public hearing offered.

Response: Per N.J.A.C. 7:19-2.7-2.8, there is the opportunity for public hearings on every water allocation permit major modification, such as the hearing held on December 19, 2012 for this application. As stated in response to comment 36 above, the county-wide conservation was not stipulated by P.L. 2001 Chapter 165. Implementation of an AWSP with additional sources of supply will require a major modification of the LTMUA water allocation permit and at that time the opportunity for additional public input will available. Other regional scale projects will also require multiple permits and public participation.

37. Comment: If the NJDEP is shifting its Gibson Bill requirements for developing a sustainable water supply to the LTMUA, the NJDEP Staff Report should make it clear that the AWSP is developed to meet the Gibson Bill criteria for avoiding any adverse ground water or ecological impacts. The Staff Report should also make it clear that this shift of responsibilities is the formal policy of the NJDEP.

Response: See response to Comment 35 above.

38. Comment: This increase of 30 million gallons per month and 462 million gallons per year is counterproductive to the overall salt water intrusion problem in the Cohansey aquifer in Lower Cape May County. WWU spent over $5,000,000 to successfully reduce its Cohansey diversion by as much as 400 MGY to reduce the threat of salt water intrusion in the Cohansey aquifer. If LTMUA is granted the increased allocation, all of the progress made by the WWU will be reversed.

Response: LTMUA does not have an alternate fresh water aquifer available other than the Cohansey aquifer. However, LTMUA is required to develop an AWSP. As discussed at the January 4, 2013 meeting and referenced in response to Comment 13 above, LTMUA is proposing to construct an interconnection with WWU and update its interconnection agreement with CMCWD. This would avail LTMUA to more sustainable sources of supply.

39. Comment: Recent testing has concluded that salt water intrusion may be increasing faster than originally predicted by the USGS studies. In fact the most recent testing conducted by the WWU, NJDEP and USGS indicate that there may be a tongue of salt water advancing between the WWU Rio Grande Well

Field and the new LTMUA Well Field at the airport. This increase in the chloride levels is still not fully understood and should be further investigated prior to granting any increases in allocations.

Response: The Well Field at the Airport is not considered a new Well Field. Water has been used from this location since the 1930's. Although wells at the airport have been replaced in recent years and a new well added, there is no new allocation at this location. LTMUA is required to develop an AWSP and implement sentinel well monitoring. Some of these wells have been constructed between the "tongue" of saltwater migrating from the Delaware Bay and the WWU Rio Grande Well Field. If saltwater begins migrating toward the LTMUA Airport Well Field, LTMUA will be required to implement their AWSP and to reduce their pumpage from the affected area accordingly.

40. Comment: The increase in allocation is primarily to serve the Town Bank and Villas which are experiencing water quality problems with the private wells. A number of comments were received from residents, politicians, and medical professionals expressing concern for the residents of Town Bank and Villas which are currently using private wells. Public health and water quality issues have been raised regarding contamination of the private wells.

Response: The demonstrated need of the increased allocation to address public health and drinking water quality issues is the primary rationale for the Department's approval of additional allocation.

41. Comment: The USDA has awarded a twelve million dollar grant loan to install new water mains in the affected areas. This is the second largest grant loan issued by the USDA in the State of New Jersey. The homes in these sections of Lower Township are existing homes with shallow domestic wells vulnerable to contaminants. They are not new homes nor are they planned or proposed developments for the future.

Response: Comments are duly noted. Refer to response to Comment 40 above.

42. Comment: Data was submitted dated February 3, 2004 and May 17, 2004 on a water filter chemical analysis from 106 West Rosemary Road, Wildwood Crest, which is served by WWU which showed concentrations of Chloroform, Bromodichloromethane, Dibromochloromethane, Bromoform, Chlordane, Copper, Methylene Chloride, Chlorobenzene, Napthalene, and Anthracene in excess of NJDEP Class II-A Groundwater Quality Criteria and/or NJDEP Safe Drinking Water standards.

Response: The water quality of water delivered by WWU is beyond the scope of this application. However, in order to address the concerns raised at the Public Hearing regarding the water quality delivered by WWU these comments and test results have been forwarded to the NJDEP's Bureau of Safe Drinking Water. This facility is regulated by the State of New Jersey to make sure that the water delivered to the consumers meets the Safe Drinking Water Standards in accordance with New Jersey Safe Drinking Water Act, N.J.A.C. 7:10. Any concerns regarding the water quality should be addressed to the Bureau of Safe Drinking Water by calling (609) 292-5550 or by visiting the Division of Water Supply website at http://www.nj.gov/dep/watersupply, or by email at watersupply@dep.state.nj.us.

43. Comment: A third critical area should be created in Cape May County.

Response: Cape May County and Water Supply Critical Areas 1 and 2 are being handled differently. Pursuant to the Water Supply Management Act (N.J.S.A. 58:1A-1), the NJDEP could designate Cape May County, or portions thereof, as an Area of Critical Water Supply Concern. However, the NJDEP believes that it is more appropriate to address the County's water supply problems through P.L. 2001, Chapter 165, which is specific to Cape May County. The NJDEP reserves the right to designate the County as an Area of Critical Water Supply Concern at a later date in the event that adequate progress is not made in the implementation of individual measures in each allocation permit.

44. Comment: Freshwater diversions are being dumped into the ocean.

Response: Wastewater re-use has been implemented on a small scale by Cape May County Utilities Authority. USGS Scenario 6 evaluates the use of injected waste water to create a saltwater barrier. The NJDEP encourages both types of re-use; however cost benefit analyses need to be performed to determine if re-use and re-injection is practical on a regional scale. Reuse is an effective long-term component and is should be included in a comprehensive water supply strategy in the County.

45. Comment: There is far less business activity at the Airport compared to the past.

Response: Comments are duly noted that the business at the Airport is significantly lower than in the past. Although water has been reserved for use at the Airport complex through the 1992 agreement, very little water has been used under this agreement. The predominant use of water approved under this modification is for supply to existing communities.

46. Comment: The City of Cape May seeks assurances from NJDEP, LTMUA, and NJAW that the appropriate studies and findings have been completed to show that the increase water allocation in the stated aquifers do not have a negative impact on the Cape May City's wells by accelerating saltwater intrusion.

Response: CMCWD Cohansey aquifer sources have been impacted by saltwater intrusion created by localized pumping of their own wells. This was the basis for construction and implementation of desalination by the City. The desalination treatment plant is served by wells completed in the AC800 which are not affected by LTMUA's pumpage from the Cohansey aquifer. Although there may be some additional decline in water levels observed in the City's one remaining Cohansey well if LTMUA were to pump its full allocation, as this well is already experiencing saltwater intrusion, additional minimal interference is negligible.

Discussion

1. Several meetings between NJDEP and regional water supply purveyors have taken place to discuss a county wide conservation plan and Cape May County regional water supply strategy.

2. The demands for Lake Laurie Campground have been reduced to 1.5 MGM and 11.775 MGY. Lake Laurie currently has a Water Use Registration 11335W which provides for 3.1 MGM, and based on historical use has never used more than half the allocation. The overall annual allocation limits should be reduced accordingly. If Lake Laurie Campground requires additional water they will need to coordinate with LTMUA to obtain more water through a contract.

3. Seven sentinel wells have been constructed by LTMUA. The requirement to install these wells should be changed to require submittal of well records. The wells have been added to the monitoring and submittal action requirements to report static water level, chloride, and sodium sampling results.

4. Three existing additional wells may compliment the sentinel well network including USGS Higbee 2, USGS Canal 5, and Cape May National 2500005275. If possible these wells should be incorporated into LTMUA's monitoring network.

5. The date to submit the water conservation plan in the draft permit and staff report does not provide sufficient time for compliance.

Amendments

1. Based on historic usage, the demands for the Lake Laurie Campground have been reduced to 1.5 MGM and 11.775 MGY resulting in an overall LTMUA allocation of 143 MGM, 1034.608 MGY and a Primary Distribution Group allocation of 115.74 MGM, and 820.617 MGY.

2. Seven sentinel wells have been added to the permit with associated sampling and reporting requirements. Since the seven sentinel wells were installed after the draft permit, the requirement to install the sentinel wells has been changed to require submittal of well records.

3. AWSP implementation should be based on chloride action levels observed in Cohansey wells.

4. References to a "Water Supply System Plan" in the permit should be changed to "Alternate Water Supply Plan".

5. LTMUA should coordinate with BWAWP and NJGWS to determine the adequacy of wells referenced in Discussion 5 above. In turn, BWAWP and NJGWS will assist LTMUA in gaining access to these wells. Revisions to the sentinel well network can be incorporated into the existing permit through a minor modification.

6. The date to submit the water conservation plan should be extended to June 30, 2013 in the final permit and staff report.

Barbara Ware
Bureau of Water Allocation & Well Permitting

Date: March 20, 2013

BAW:baw/bu